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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE



Where application of:

Leandre Adifon, et. al.

Appln. No.: 09/497,359

Filing Date: February 3, 2000

: Docket: OT-4538

: Date: March 15, 2004

: Group Art Unit: 3652

: Examiner: T. Tran

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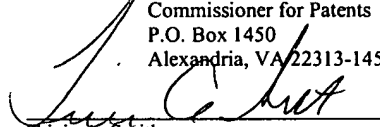
Title: ELEVATOR STRUCTURE MOUNTING SYSTEM HAVING HORIZONTAL
COMPRESSION MEMBER FOR REDUCING BUILDING LOADS AT TOP OF
HOISTWAY

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Tricia A. Smith

Sir:

APPEAL TO THE BOARD OF PATENT APPEALS AND INTERFERENCES

PURSUANT TO 37 C.F.R. §1.191

1. **REAL PARTY IN INTEREST**

The real party in interest is Otis Elevator Company. The assignment of assignor's interest was recorded on February 3, 2000 at reel 010596, frame 0049.

2. **RELATED APPEALS AND INTERFERENCES**

There are no other appeals or interferences known to appellants, the appellants' legal representative, or assignee that will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

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3. **STATUS OF CLAIMS**

Claims 1-20 are pending.

Claims 1-20 stand rejected under 35 USC §103(a) as being unpatentable over US Patent No. 5,899,300 (Miller et al.) in view of US Patent No. 3,395,777 (Rodosta).

4. **STATUS OF AMENDMENTS**

No amendments were filed subsequent to the final rejection.

5. **SUMMARY OF INVENTION**

Claims 1, 11, 14 and 17 are the independent claims.

In one aspect of the invention, Claim 1 relates to an elevator system that includes an elevator assembly disposed within a hoistway and suspended by elevator ropes having ends suspended with respect to a pair of rigid structures. The rigid structures are affixed to opposing walls of the hoistway, and a compression member is positioned between the rigid structures. Support for the invention claimed in claim 1 is found throughout the specification, for example in the paragraphs beginning at page 2, line 12; page 2, line 33; page 3, line 16; and in Figs. 1-2.

In another aspect, Claim 11 relates to a method of countering load reaction forces in a pair of rigid structures caused by a vertical load attributable to an elevator assembly suspended from said rigid structures. The rigid structures are affixed to opposing walls of the hoistway, and a compression member is positioned between the rigid structures. Support for the invention claimed in claim 11 is found throughout the specification, for example in the paragraphs beginning at page 2, line 12; page 2, line 33; page 3, line 16; and in Figs. 1-2.

In other aspects, Claims 14 and 17 each relates to an elevator system including an elevator assembly disposed within a hoistway and a pair of load bearing structures from which the elevator assembly is suspended. In each of these aspects of the invention, the load bearing structures are affixed to opposing walls within the hoistway, and a compression member is positioned between the load bearing structures. Support for the invention claimed in claims 14 and 17 is found throughout the specification, for example in the paragraphs beginning at page 2, line 12; page 2, line 33; page 3, line 16; and in Figs. 1-2.

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Claims 7, 13 and 20, which depend from claims 1, 11 and 17, respectively, recite additional features regarding the ends of the rope. Claims 4-6, 15-16 and 18-19, which depend from claims 1, 14 and 17, respectively, recite additional features relating to mounting brackets. Support for the additional features is found in the specification at, for example, the paragraphs beginning at page 2, line 33 and page 3, line 29.

As noted in the subject specification, the claimed system is well suited for machine-roomless elevator systems.

6. ISSUE(S)

- (a) Whether claim 1 is obvious under §103 over Miller et al. in view of Rodosta.
- (b) Whether claim 11 is obvious under §103 over Miller et al. in view of Rodosta.
- (c) Whether claims 14 and 17 are obvious under §103 over Miller et al. in view of Rodosta.

7. GROUPING OF CLAIMS

For the purposes of this Appeal, the claims will be grouped as follows:

- I. claims 1-10 will be grouped together,
- II. claims 11-13 will be grouped together, and
- III. claims 14-20 will be grouped together.

Each group will stand or fall on its own, independently of the other groups. Independent claims 1 and 11 recite subject matter that is patentable over the cited art for different reasons than each other and independent claims 14 and 17, as set forth more fully below.

8. ARGUMENT(S)

When an application is submitted to the Patent and Trademark Office (PTO), case law dictates that §103 places the burden of proof on the PTO to establish a prima facie case of obviousness.¹ Once the prima facie case has been established, then the burden of going forward with the evidence to rebut the prima facie case shifts to the applicant. Only the burden of going forward with evidence to rebut shifts to the applicant, however. The burden of persuasion remains with the PTO.

¹ In re Fritch, 23 U.S.P.Q. 2d. 1780 (Fed. Cir. 1992), In re Piasecki, 745 F.2d. 1468, 1471-1472, 223 U.S.P.Q. 785, 787-788 (Fed. Cir. 1984).

In this instance, a prima facie case would necessarily have to first establish that the present invention would be obvious in view of the cited prior art. In order to support a prima facie obviousness type rejection, the Examiner must take into account all the limitations in the rejected claim,² including any limitations expressed using functional language.³ Further, the obviousness must be determined based on the claimed subject matter as a whole, including any results and advantages produced by the claimed subject matter.⁴ Further, to establish a prima facie case of obviousness, there must be some teaching, suggestion or incentive to support the specific combination of references.⁵

(a) Whether claim 1 is obvious under §103 over Miller et al. in view of Rodosta.

According to the Final Rejection, claim 1 would have been obvious under §103 over Miller et al. in view of Rodosta.

Miller et al. relates to mounting a traction machine on a vertical beam 52 disposed in a hoistway. One dead-end hitch 38 is affixed to another such beam 64. Appellants find no indication in Miller et al. as to how or where the other dead-end hitch 44 is affixed.

Rodosta relates to a free-standing automobile lift consisting of four hollow, vertical corner posts, which are “rigidly-fixed” to a floor, and a vehicle-supporting frame slidably connected to the posts. According to the Final Rejection, transverse tie rods 18-20, which connect the top ends of the corner posts, are equated to the claimed compression member, and it is alleged that it would have been obvious to have provided such a compression member between the “rigid structures” of Miller et al. in order to prevent the rigid structure from bending due to non-vertical loading.

Appellants respectfully submit that the combination of Miller et al. in view of Rodosta is not proper. Further, even if combined, Appellants respectfully submit that the combination would not have included all of the features recited in the independent claims.

² Carl Schenck, A.G. v. Nortron Corp., 713 F.2d 782, 218 U.S.P.Q. 698 (Fed. Cir. 1983); Carman Industries v. Wahl, 724 F.2d 932, 220 U.S.P.Q. 481 (Fed. Cir. 1983).

³ Lewmar Marine, 827 F.2d 744, 3 U.S.P.Q.2d 592.

⁴ Diversitech Corp. v. Century Steps, Inc., 850 F.2d 675, 7 U.S.P.Q.2d 1315 (Fed. Cir. 1988); In re Chupp, 816 F.2d 643, 2 U.S.P.Q.2d 1437 (Fed. Cir. 1987); Fromson v. Advanced Offset Plate, 755 F.2d 1549, 225 U.S.P.Q. 26 (Fed. Cir. 1985).

⁵ In re Geiger, 815 F.2d 686, 2 U.S.P.Q.2d 1276 (Fed. Cir. 1987); ACS Hospital Systems Inc. v. Montefiore Hospital, 732 Fed.2d 1572, 221 U.S.P.Q. 929 (Fed. Cir. 1984).

Initially, Miller et al. does not disclose or suggest any concern whatsoever with bending due to non-vertical loading. Additionally, Miller et al. discloses that the beams 52, 64 are structural stress, I-shaped structures that are readily available, relatively inexpensive and have well-known strength characteristics (column 3, lines 33-44). One purpose of functionally separating the mounting beams from the guide rails is to permit each to be optimized for their respective functions (column 1, lines 59-61). Thus, to whatever extent non-vertical loading might have been a consideration, there is no recognition of the possibility of bending due to vertical loads (asserted in the rejection as the motivation for the combination), and the foregoing passages would seem to refute such a concern. There is no objective reason to believe that any non-vertical loads on the beams would not be readily borne by the beams themselves.

Further, the beams of Miller et al. are disposed within a closed hoistway, and the rejection seems to be predicated on the affixation of the beams to the walls (which apparently would have been readily done by conventional means). There is no suggestion or objective reason to believe that any non-vertical loads on the beams that would not have been absorbed by the beams themselves, would not have been readily borne by the walls.

On the other hand, in the free-standing structure of Rodosta in which the corner posts are affixed to the floor, there are no surrounding vertical structures to which to affix the corner posts. Further, the horizontal forces at the tops of the corner posts would have been considerable, and the need for compression members apparent. Two of the cited tie rods 18, 19 run parallel to lengths of load-bearing cables 47, 47, which extend horizontally between the top ends of respective pairs 12, 14 and 13, 15 of the corner posts, at which pulleys redirect the cables 47, 47 downward. No similar arrangement is shown in Miller et al. Also, the other cited tie rod 20 encases a shaft 21, to the ends of which two of the above-mentioned cable-redirecting pulleys 34, 35, located at corner posts 12, 13, respectively, are journaled. Again, no similar arrangement is shown in Miller et al.

Therefore, in contrast to Rodosta, there would have been no objective reason to believe a compression member would be needed in the arrangement of Miller et al., to prevent bending due to non-vertical loading or for any other reason. Certainly, no indication of such need can be found in Miller et al. And nothing in Rodosta would suggest that the tie rods be used in such a manner.

The Final Rejection asserts that one skilled in the static structure art would have recognized that positioning a compression member between the pair of rigid structures of the system of Miller et al. would prevent the structures from bending due to non-vertical load. However, this assertion does not address the lack of any recognition in the art that bending due to non-vertical loading would have been a concern.

Therefore, there would have been no objective motivation to combine the cited documents as asserted.

Further, even if combined in the asserted manner, the documents fail to disclose salient features of the invention recited in Claim 1. In particular, both Miller et al. and Rodosta fail to disclose or suggest that the ends of the elevator ropes are suspended with respect to a pair of rigid structures that are affixed to opposing walls of the hoistway, much less a pair of such rigid structures between which a compression member is positioned.

As noted, Rodosta discloses a free-standing structure, so there can be no rigid structures that are affixed to opposing walls. On the other hand, the Final Rejection asserts that Figure 1 of Miller et al. clearly shows ends of ropes suspended with respect to a pair of rigid structures that are affixed to opposing walls of the hoistway. Appellants respectfully disagree.

As noted, Appellants find no indication in Miller et al. as to how or where the other dead-end hitch 44 is affixed, but it is clearly spaced from the vertical beam 52 on which the traction machine is mounted. It would not be appropriate to assume that the dead-end hitch 44 is affixed to a wall of the hoistway. Therefore, Miller et al. and Rodosta fail to disclose or suggest the claimed feature regarding the ends of the elevator ropes being suspended with respect to a pair of rigid structures that are affixed to opposing walls of the hoistway.

And, even assuming that the compression member of Rodosta is incorporated into the system of Miller et al. as suggested in the Office Action, there is no objective reason to assume that that compression member would extend between the structures with respect to which the ends of the ropes are suspended. The Final Rejection asserts that it is common knowledge that the compression member has to be placed between rigid structures in order to prevent the rigid structures from bending inward. However, that assumes that the rigid structures would be loaded in a manner to be subject to inward forces, which is not at all clear from the disclosure of Miller et al., especially regarding dead-end hitch 44. Therefore, Miller et al. and Rodosta fail to

disclose or suggest the claimed features regarding elevator ropes having ends suspended with respect to a pair of rigid structures between which a compression member is positioned.

Therefore, claim 1 would not have been obvious in view of Miller et al. in view of Rodosta.

(b) Whether claim 11 is obvious under §103 over Miller et al. in view of Rodosta.

According to the Final Rejection, claim 11 would have been obvious under §103 over Miller et al. in view of Rodosta.

For the same reasons discussed above in connection with the rejection of claim 1, Appellants respectfully submit that the combination of Miller et al. in view of Rodosta is not proper.

Further, even if combined, Appellants respectfully submit that the combination would not have included all of the features recited in the independent claims. In particular, there is no disclosure in either cited document to suggest that, if combined, the compression member would be provided between a pair of rigid structures that are affixed to opposing walls of the hoistway, much less points on the rigid structures from which the elevator assembly is suspended.

As noted, Rodosta discloses a free-standing structure, and therefore does not disclose or suggest rigid structures that are affixed to opposing walls. As noted, Appellants find no indication in Miller et al. as to how or where the other dead-end hitch 44 is affixed, but it is clearly spaced from the vertical beam 52 on which the traction machine is mounted. It would not be appropriate to assume that the dead-end hitch 44 is affixed to a wall of the hoistway. Therefore, Miller et al. and Rodosta fail to disclose or suggest the claimed feature regarding a compression member provided between a pair of rigid structures that are affixed to opposing walls of the hoistway.

The Final Rejection asserts that it is common knowledge that the compression member has to be placed between rigid structures in order to prevent the rigid structures from bending inward. However, even assuming that a compression member would have been placed between the rigid structures, there would have been no suggestion to position a compression member between points on the rigid structure from which the elevator assembly is suspended.

Thus, the cited combination fails to disclose or suggest the features recited in Claim 11 regarding positioning the compression member between a pair of rigid structures that are affixed to opposing walls of the hoistway and between points on said rigid structures from which said elevator assembly is suspended.

Therefore, claim 11 would not have been obvious in view of Miller et al. in view of Rodosta.

(c) Whether claims 14 and 17 are obvious under §103 over Miller et al. in view of Rodosta.

According to the Final Rejection, claims 14 and 17 would have been obvious under §103 over Miller et al. in view of Rodosta.

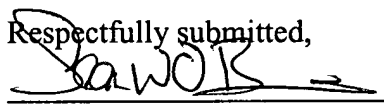
For the same reasons discussed above in connection with the rejection of claim 1, Appellants respectfully submit that the combination of Miller et al. in view of Rodosta is not proper.

Therefore, claims 14 and 17 would not have been obvious in view of Miller et al. in view of Rodosta.

Conclusion

As appellants have traversed each and every rejection raised in the Final Rejection, it is respectfully requested that the rejections be reversed and the rejected claims be passed to issue.

Payment of the necessary fee is by credit card. Form PTO-2038 is attached. Please charge any additional fees or credit any overpayment to Deposit Account No. 15-0750, Order No. OT-4538.

Respectfully submitted,
By 
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9. APPENDIX

Claims involved in the Appeal:

1. An elevator system comprising:
an elevator assembly disposed within a hoistway and suspended by elevator ropes having ends suspended with respect to a pair of rigid structures affixed to opposing walls of the hoistway;
and
a compression member positioned between said rigid structures in such a manner so as to counter resultant forces applied to said rigid structures due to a vertical load.
2. An elevator system according to claim 1, wherein
said resultant forces include moment forces and inwardly-directed, generally horizontal tension forces.
3. An elevator system according to claim 1, wherein
said compression member is generally horizontally aligned.
4. An elevator system according to claim 1, further comprising
mounting brackets for attaching said elevator assembly to said rigid structure.
5. An elevator system according to claim 4, wherein
said compression member is positioned between said mounting brackets.
6. An elevator system according to claim 5, wherein
said mounting brackets are positioned on opposite sides of said elevator assembly.
7. An elevator system according to claim 4, wherein
said elevator rope ends are suspended by said mounting brackets.
8. An elevator system according to claim 1, wherein
said compression member comprises a rigid compression member.
9. An elevator system according to claim 1, wherein
said vertical load is attributable to said elevator assembly.

10. An elevator system according to claim 1, wherein
said elevator assembly further comprises a pair of elevator guide rails having said
compression member located therebetween.
11. A method of countering load reaction forces in a pair of rigid structures affixed to
opposing walls of a hoistway caused by a vertical load attributable to an elevator assembly
suspended from said rigid structures, said method comprising
providing a compression member; and
positioning said compression member between points on said rigid structures from which
said elevator assembly is suspended.
12. A method according to claim 11, wherein
said compression member is positioned generally horizontally.
13. A method according to claim 11, wherein
said compression member is positioned between bracket structures that attach elevator
rope ends to said rigid structure.
14. An elevator system comprising:
an elevator assembly disposed within a hoistway;
a pair of load bearing structures affixed to opposing walls within the hoistway and from
which the elevator assembly is suspended by elevator ropes; and
a compression member positioned between said load bearing structures in such a manner
so as to counter non-vertical components of forces applied to said load bearing structures due to
suspension of the elevator assembly.
15. The elevator system according to claim 14, wherein
the loading bearing structures comprise mounting brackets attached to walls of the
hoistway.
16. The elevator system according to claim 15 wherein
said mounting brackets are positioned on opposite walls of hoistway.

17. An elevator system comprising:
an elevator assembly disposed within a hoistway;
a pair of load bearing structures affixed to opposing walls within the hoistway and from which the elevator assembly is suspended; and
a compression member positioned between said load bearing structures in such a manner so as to counter non-vertical components of forces applied to said load bearing structures due to suspension of the elevator assembly.
18. The elevator system according to claim 17, wherein
the load bearing structures comprise mounting brackets for attaching said elevator assembly to walls of the hoistway.
19. The elevator system according to claim 18, wherein
said mounting brackets are positioned on opposite walls of hoistway.
20. The elevator system according to claim 18, wherein
the elevator assembly comprises an elevator car and elevator ropes by which the car is suspended, and
ends of the elevator ropes are suspended by the mounting brackets.